



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003NJ44B

Title: Seed Dispersal Dynamics in a Restored Salt Marsh: Implications for Restoration Success

Project Type: Research

Focus Categories: Wetlands, Ecology

Keywords: seed dispersal, wetlands, restoration, secondary dispersal, primary dispersal, salt marsh

Start Date: 03/01/2003

End Date: 03/01/2004

Federal Funds Requested: \$1500.00

Matching Funds: \$12060.00

Congressional District: 6

Principal Investigators: Hicks, Polly L.; Joan G. Ehrenfeld

Abstract: The research outlined in this proposal aims to critically examine one restoration approach (natural colonization) and its application to salt marsh restoration. Natural colonization is often incorporated into restoration activities because it helps to ensure the genetic diversity and health of a restored site. The main pathway for salt marsh colonization is thought to occur through the secondary dispersal of seeds by tidal forces. Secondary dispersal is the additional movement of the seed from its initial substrate due to an outside force; primary dispersal is the release of a seed from the parent plant to a substrate, such as land or water. Neither the application of natural colonization for restoration activities nor the dynamics of secondary dispersal in a salt marsh system have been well studied (Bakker et al. 1996; Palmer et al. 1997; Zedler 2000). This research will quantitatively examine seed input, germination and secondary dispersal to assess the influence of these important, but poorly understood, salt marsh dynamics on restoration success in the Hackensack Meadowlands (Meadowlands).

Proposed activities will:

- characterize the seed input of a restored marsh,
- determine the influence of secondary dispersal on seed input,
- determine how seed input is related to the successful establishment of vegetation, and

- experimentally investigate seed dispersal patterns in the Meadowlands.

The methodologies developed and information collected in this project can be used by agency personnel and restoration practitioners to enhance their understanding of salt marsh restoration and the factors that influence success. This research can also be used by state agency and restoration practitioners working in the Meadowlands to enhance their knowledge of the area's ecology enabling them to make restoration activities more predictable. In addition, once developed and tested, these methodologies can be used by individuals working in other marsh systems to improve their restoration activities.

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